US.Pat.Ap.Nr. 09/911,700 Docket 821-11US

Remarks

Responsive to O/A dated 29 September 2003

1. Amendments to written disclosure and claims

No amendments at this time.

2. Proposed Corrections to Drawings

In Fig 4, we propose to delete the leader lines that do not lead to numerals. (We count eight such lines in Fig 4.)

Also in Fig 4, we propose to replace the upper "30" with "30X" and the lower "30" with "30Y".

3. 35 USC 103 Rejection

We request that the rejection of claim 1 under 35 USC 103 be reviewed, and withdrawn, for the following reasons.

3.1. We note the PTO position, when it comes to cutting out the shaped-pieces of glass, that it would be obvious to incorporate the use of an NC machine into the known "handicrafts" procedure for making decorative glass panels, to cut the shaped-pieces -- obvious because NC machines have previously been used to cut pieces of glass. The relevant prior art is the generally known use of NC machines for cutting pieces of material.

We note the PTO position, when it comes to placing the shaped-pieces on the base-pane, that it would be obvious to incorporate the use of a template into the known "handicrafts" procedure, to guide and hold the shaped-pieces into their correct locations on the base-pane – obvious because templates have previously been used to locate glass pieces on glass panels. The prior publication that discloses the use of a template to guide and hold the pieces into their correct locations on the base-pane, is Sellars.

3.2. In our view, these positions do not amount to proper grounds for rejecting claim 1.

We point out that claim 1 is distinguished from the known "handicrafts" procedure by two features, namely (1) that we cut out our shaped-pieces using the NC cutting machine, and (2) that we use a provided template to position the shaped-pieces on the base-pane.

We also point out that claim 1 is distinguished from the Sellars procedure by two features, namely (1) that we cut out our shaped-pieces using the NC cutting machine, (2) that we use a furnace to fuse the base-pane and the shaped-pieces together.

3.3. It appears to us that the PTO is making two separate attacks on claim 1. The PTO alleges that it would be obvious to incorporate using the NC machine into the known handicrafts procedure, and then the PTO also alleges that it would be obvious to incorporate using the template into the known handicrafts procedure.

It seems to us the O/A is aimed at making each feature seem obvious, in isolation. However, the law is clear: in putting together a rejection under 35 USC 103, the claim must be regarded as a whole. Under 35 USC 103, the individual elements of the procedure should not be attacked each in isolation; rather, the question to be determined is whether the overall procedure, i.e the purposefully coordinated totality of the whole procedure, is or is not obvious, over the purposefully coordinated whole procedures that have been disclosed in the prior art.

3.4. So, in this case, we have not just simply aggregated two independent features, selected arbitrarily each one independently of the other. Rather, we claim the combination of the two added features. Combining those two features has yielded a benefit that arises from the fact of combination. We have recognised that it is only when the shaped-pieces are cut by the NC machine that the use of a template can be seriously considered. When the pieces were cut out by hand, they were so hopelessly inconsistent dimensionally, piece to piece, as to render the template virtually useless. This factor is explained in detail in our specification. The fact that Sellars proposes to use a template with hand-cut glass pieces does not take away from our experience, as described.

3.5. The O/A says it would be obvious to change from cutting out the shaped-pieces by hand to cutting out the shaped-pieces on an NC cutting machine. Let us admit, for the sake of argument, that that would indeed be an obvious modification. Next, the O/A says it would be obvious to change from positioning the shaped-pieces by hand to using a template to position the shaped-pieces. Again, let us proceed as if the notion of using a template to position the pieces would obviously occur to the skilled person.

But still that leaves the PTO position short. The PTO says nothing about why the skilled person would find it obvious to do both things together. In order to be covered by claim 1, a procedure has to combine cutting the shaped-pieces on an NC machine, **AND** using a template to position the shaped-pieces on the base-pane.

3.6. As explained in our specification, it is to this combination of features that we attribute the major benefits of the invention. In our experience, as explained in the specification, when the pieces are cut by hand, the variations and inaccuracies of the shaped-pieces render the use of a template, for any but the crudest designs, quite worthless.

We are the ones who have recognised that it is only when the shaped-pieces are cut on the NC machine that the benefits of using a template can be realised. It is because the NC machine cuts the shaped-pieces very accurately and repeatably, that the template can be shaped to be close enough to the shape of the cut-pieces as to render the template useful in locating and positioning the shaped-pieces on the base-pane.

Nothing in the prior art indicates that this combination of procedural features would be synergistic. We are the first to have realised what a huge saving there is to be made in the overall cost of producing decorative glass panels, by combining these two features, whether or not the features were known individually, per se.

3.7. In the traditional manufacturing procedure, in which the shaped-pieces are cut out and positioned by hand, it might take e.g eight man-hours of labour to complete one panel. Furthermore, much of that work demands a high level of skill and attention. By comparison, using the procedure of the invention, the same panel might take e.g one man-hour. [We refer the examiner to our website www.fusionglass.net. The large panel shown on the left took one man-hour of labour to make by our procedure. We speculate that such a panel would take eight hours by traditional handicrafts techniques. However, it is very unlikely that such an intricate design would be carried out except on a work-of-art basis -- because of the huge expense involved.]

We do not assert that the 8:1 ratio will apply in every case, but we do assert that the ratio may be expected to be very significant. Note that this is an improvement, not of a few percent, but of almost an order of magnitude. This being so, we invite the PTO to consider that it negates the notion that the skilled persons would have found it obvious to incorporate combining both the NC machine and the template into the manufacturing procedure.

Nothing in the prior at suggests that combination. We note that the O/A is completely silent as to why it might or would occur to the skilled person to select that particular combination of procedural features.

3.8. Furthermore, with our procedure, being the purposeful combination of all the elements listed in claim 1, the level of skill required is much reduced. Plus, wastage due to breakages is minimised. Plus, the designs can be more intricate.

Furthermore, our procedure, being the purposeful combination of all the elements listed in claim 1, can be put in place with no great investment in machinery -- as befits the scale of the commercial market in decorative glass panels. We do not call for the whole manufacturing procedure to be automated.

What we require is for the cutting-out of the shaped-pieces to be done by an NC cutting machine, and we require a template to be provided and used when positioning the shaped-pieces on the base-pane.

We do not require pick-and-place machinery. That machinery is expensive because it must be custom-designed for each particular job. We have recognised, on the other hand, that access to

NC cutting machines is available on a job-shop basis. An NC cutting machine is a general purpose machine. No special adaptations need be done, per job, other than programming the path of the cutting heads. It is economical to rent time on a general purpose NC cutting machine – but not on a pick-and-place machine.

Thus, the savings that arise from the use of the new procedure may be realised on the very first job. There is no need to amortise expensive equipment over an initial sales period. (Of course, this does not prevent the manufacturer of decorative glass panels purchasing his own NC cutting machine, if he so wishes.)

3.9. We also consider just what the skilled person might learn from a perusal of the Sellars reference, as follows.

We learn from Sellars that the purpose of the template is to make it easier to remove excess adhesive, i.e the excess that squeezes out from underneath the stuck-on bevels. We note that, in Sellars, the template is left on during curing of the adhesive. The function of the Sellars template only arises during, and after, the curing of the adhesive.

Thus, we would have to say that Sellars contains no relevant teaching for the situation where the template is removed prior to bonding. In our case, the template may be removed prior to bonding (i.e prior to insertion of our panels into the furnace). Or, even if our template is left on, inside the furnace, it will just burn away. Either way, the function of our template is completed before bonding takes place.

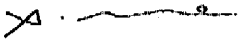
By contrast, the Sellars template only starts to play its functional role during bonding, and its role continues and is completed after bonding (only then does it assist in the removal of the adhesive).

The skilled person would surely not think of transposing Sellars use of a template to the glass furnace situation. The skilled person would recognise that there would be little opportunity for commercial benefit in a situation where Sellars' template is completely destroyed, well before the moment its author indicates it would start to become useful!

3.10. For the above reasons, we believe the '103 rejection of claim 1 is erroneous, and we ask that it be withdrawn.

4. We believe this patent application is now in order for allowance, and we look forward to being so notified.

Submitted by:



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